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ABSTRACT

Many of the pacemaker British infant schools possess characteristics which advocates of open education would like to see replicated in this country. But in this examination of the qualities and goals of open or "developmental" education, American educators are cautioned against oversimplifying and romanticizing developments in Britain. Educators in this country should understand the process by which the British pacemaker schools developed and the ideas that guided this process. Some of the qualities of open education are discussed and contrasted with those of traditional school programs. Suggestions regarding the development of pacemaker caliber programs in the United States include ideas for involving teachers, children and parents in the process of change, and for developing increased independence and initiative on the part of both children and teachers. (MG)

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BEYOND "OPEN EDUCATION": GETTING TO THE HEART OF CURRICULUM MATTERS

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BEYOND "OPEN EDUCATION": GETTING TO THE HEART OF CURRICULUM MATTERS

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In his Experience and Education (1938), John Dewey scolded the adherents of "Progressive" education for their "either-or" thinking and for rejecting (or accepting) educational ideas superficially. He told educators that they could not avoid structuring children's development; therefore, the main issue was not between structure and no structure, but between structuring which restricted further development and structuring which was "educative" or facilitated further development. Dewey presented a reformulation of many of the ideas in his earlier writings and outlined some of the hard work that remained to be done if these ideas were to be successfully translated into practice. Most of that hard work still remains to be carried out.

In the past third of a century much of the translation that Dewey called for has been accomplished in a small number of schools in England. In 1967 this work was given official recognition by a Department of Education and Science document Children and their Primary Schools (the Plowden Report), which singled out 109 schools as "pacemakers and leaders of educational advance" (1967, p. 101), thus recommending them as models to be emulated.

Publication of the Plowden Report took place only ten years after the launching of "Sputnik", the earth satellite that served as a booster rocket for a drive previously begun in the United States (Jennings, 1967) to restore "basic" education. This drive was accompanied by a vociferous rejection of the child-centered views of the Progressives. Therefore, while about one-third of the elementary schools in England were slowly evolving programs which combined careful attention to the nature of children and the nature of knowledge, we in the United States were caught up in a curriculum revolution out of which knowledge reemerged as emperor with the needs of society (e.g.,

for scientists and engineers) as the power behind the throne. The result was a flurry of curriculum projects in subject-matter areas which focused on defining the "structures" of the disciplines and finding ways of presenting these to children.

Because of this recent emphasis, it seems rather odd that a movement for "open education", as symbolized by Charles Silberman's Crisis in the Classroom (1970) is well underway a scant fifteen years after the official demise of the progressive movement in 1955 (Cremin, 1961). There are many definitions of open education held by the members of this movement. These range all the way from those that contain new ways of structuring experiences in school so that children still master the subject areas while having open many choices as to how and when (as in the "pacemaker" primary schools) to those where any kind of structuring is considered to be an imposition on children.*

Before the increased interest in spreading open education goes any further, it would be well for those responsible for the education of young children--and, in particular, we who are advocates of some version of open education--to examine carefully the assumptions upon which we are acting as educational change agents.

I

Let us assume that our support of open education is motivated by the best of intentions and that our failure to bring about lasting educational reform since Dewey's time is due to the underdeveloped state of the science-based art of education. What are we looking for? What kind of reforms are we trying to effect?

*Some educators in this latter group are quite good at structuring children's activities in creative and apparently instructive ways in their own classrooms. However, their followers cannot replicate their kind of structuring because its source and rationale is not made clear.

Let me suggest a list of some of the qualities we seek in an educational program:

1. Psychological validity - a comprehensive image of how human learning and development is shaped;

2. Relevance - connection with the active and ongoing inquiry process children bring to school with them and continuity with the lives they live out of school;

3. Individualization with socialization - allowance for children to develop in different equivalent ways consistent with the requirements of society;

4. Humanism - opening up a full range of ways of knowing and being human for children, while stressing the uniqueness of each way of knowing and its overlapping with other ways; and

5. Future orientation - tries to produce adults who can continue to keep up with advances in knowledge and who are capable of making the reforms necessary to adapt to changing conditions without abandoning valuable (adaptive) aspects of human heritage.

Many of us have found in the pacemaker British infant schools a set of programs which embody many of the characteristics listed above. The problem we have is one of replication, of how to produce local American equivalents of the pacemakers. Unfortunately, it is extremely difficult for most of us to observe a pacemaker-type program in action, even for an extended period of time and then go on to successfully reproduce such a program elsewhere. Even the best teachers find it hard to describe to someone else just what they do and why. Accordingly, it is difficult to promote the development of pacemaker-type open education programs through speeches and workshops, articles in periodicals and books. Conversely, it

is almost too easy to convert people to a new idea or plan without helping them acquire the insights and skills necessary to carry it out.

For this reason, certain educators in the United States view with alarm the speed with which conversion to the open education movement has gathered momentum.* In some converts, there is a tendency to oversimplify and romanticize the developments in Britain and to ignore the problems the British continue to face in producing more programs of pacemaker caliber. Other advocates profess a desire to abolish schools--or at least the public school system--in order to provide open education for children but they do not show what they would do to keep children from being at the mercy of societal forces over which they have no control.

We who want to see open education programs developed in this country are afraid that mindless attempts by well-meaning people will lead to the conclusion that open education won't work here--and yet we won't really have properly tried it.

This was surely the case with Progressive education and many of the "new" mathematics and science projects. It has been true with many well-known approaches to reading instruction, with "core curriculum" and with "compensatory" education for the disadvantaged. It is not so much that we cannot develop approaches that we value, or even that there aren't examples of open education already functioning in this country; it's just that we haven't found ways to effect widespread replication. Somewhat paradoxically, we can reproduce many of the particulars of a model program in new situations without capturing its central essence, without getting to the heart of the approach we are trying to copy. It is like following a friend's recipe and not coming out with the same high quality product.

*See Lilian Katz memo, "Stop the Movement!" (ERIC/ECE, April 1971).

We employ the same words and labels; we use similar administrative arrangements (such as patterns for grouping students); we carry on what seem to be identical teaching and learning activities; and we build similar buildings. But usually we end up not having brought about the desired program changes. Why?

We do not get to the heart of curriculum matters; we do not get handles on those aspects of teaching-learning behavior and the settings in which these behaviors take place. There are five characteristics of our approach to curriculum development that are responsible for this dilemma: oversimplification, extremism, loose talk, poor maps, and ivorytowerism.

Oversimplification. Let me say first of all that we educators have a very strong preference for what we are already doing. When a program for which we are responsible appears not to be accomplishing what is intended with some children, we have a strong tendency either to blame the children or their families because they are "disadvantaged" or "not motivated." If we do decide we could help by altering our programs or methods, we tend to manipulate variables around the periphery rather than to work out more fundamental reforms. In short, we tend to look for simple solutions to complex problems. We look for five minute recipes for dishes that take days to learn how to cook. In the language of psychologists, we seek one-trial learning of an accumulation of individual methods and techniques, when long-term development or cumulative learning is required.

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The result of this approach is that when we observe a program which we would like to replicate, we tend to focus on observable teacher and student behaviors. We look for specific methods to copy, for the presence or absence of special materials or equipment, or for particular ways to group children or teachers. We are continually seeking the method or technique, the set

of materials, or the one "best" curriculum model to help us achieve whatever objectives we have for all children. Quite recently, for example, a good deal of stress was put upon behavioral objectives on the assumption that, once an objective is specified in terms of observable student behaviors, the problem of reaching it has been virtually solved.

Complex entities such as growing children and school programs require complex approaches if we are to develop better understanding of them. Bringing about changes in complex organisms and situations requires patience and hard work over a long period of time. In the end, we will find that programs which are qualitatively different from each other can be observed to contain many of the same particulars. We will also find that some programs which are developmentally equivalent in their influence on children may look very different from one another in certain surface particulars.

Curriculum development should involve working out problems consistently middle ground, not bouncing from one scheme to another. The standard curriculum carries on despite most of our assaults on it, when we continue to flit around it in orbit from one curriculum innovation to another.

Extremism. As we can go to one extreme in our focus on particular things that we are sure we want to do with and for children, we can also go to the other extreme and be unwilling to commit ourselves to any specifics for fear of imposing on children and interfering with their natural development. This is the "either-or" tact of which Dewey complained. We can look for sequences of lessons to give to children or we can let each one "do his own thing". can present programs in "new math" or we can let children learn arithmetic "functionally" as they see the need. We can devise behavioral objectives and give standardized tests of achievement or we can be very vague about our goals and refuse to judge children at all or to hold

them to standards of achievement or competence. Above all, we can be extremely impatient for results and quick to judge whether or not a program or technique is "working" or we can spend thousands of dollars over a period of years and not even follow up what the results have been in terms of children's behavior and development. For many years we have assumed that the public schools were functioning adequately. Now the pendulum has swung around and people are investigating success or failure and trying to make educators "accountable"?

Loose Talk. Another problem which is very much related to extremism can be found in the language we use to talk about education. It is not possible to talk about "open education" and not have a whole group of teachers say that they already have it. Yet you can go into their classrooms to look for your version and it isn't there. This is what happened to Bruner's teaching of "structure", to learning by "discovery", to "new math", and many other terms we have used. We often use labels to erect false bridges of understanding; we also use labels to erect verbal barriers between us without stopping to find out, in either case, whether such terms and labels mean the same things to all concerned. Think, for example, of the controversy one can get into using such terms as "progressive education" or "sex education" or "sensitivity training". We allow our labels to divide us by talking of extremes: open vs. traditional, child-centered vs. knowledge-centered, behavioral objectives vs. expressive objectives, freedom vs. structure, behavior modification vs. responsive environment.

Poor Maps. Our language is weak because our theory is weak. The words we use can mean different things to different people because each of us interprets those words more on the basis of local or private conceptualizations of the phenomena involved than on the basis of broadly shared, public

conceptualizations. This happens partly because we have not developed such conceptual schemes and partly because the ways of thinking about teaching and learning that some of us share are simply different from those shared by others. Our maps of the education-development territory are drawn with different symbols and conventions, somewhat like the idiosyncratic language sometimes developed between twins.

In any case, when many American (and British) educators look at the "pacemaker" programs, they are like a group of baseball fans trying to understand football: they operate in a different ballpark. Consider how common terms such as "hit", "score", "a play", "a run", and even "pass", "pitch", and "catch" are used in the two games. What would terms such as "yards to go" and "downs" mean to a baseball buff new to football? Are they analogous to "bases" and "innings"? Both games are played in ballparks; both involve throwing and catching a "ball"; and fans, strategy, and league standings. Yet each is very different and the terms used can be fully understood only in the context of the appropriate game. Each game defines its terms in ways analogous to those in which the theories of a science define scientific terms (and concepts). A group of persons can learn to swing a bat, run bases, catch flies, and field grounders and yet still not be a baseball team. Yet a baseball team can play baseball without most of the paraphernalia that is usually involved in major league contests. (Think of the sandlots and of stickball in the streets.) What an effective team has is a "map", a shared understanding of the game that permits them to play even under conditions that are far from optimal.

The analogy is limited, but don't teachers also have such a "map" of teaching? The master teacher who can do a splendid job teaching children to read and to be excited about it in an old or new building, in crowded

or spacious quarters, with small or large groups, can be said to possess an understanding of teaching, learning and reading that transcends most specific situations. The pacemaker schools in England exist under all the conditions just mentioned, and they employ most of the same procedures used in all programs (age-grade grouping and vertical grouping, direct group instruction in single subject areas using focused materials and student-initiated projects involving a number of areas, basal readers and language-experience activities). What makes the difference is the context in which such procedures are employed, and the key to that context is the teacher's understanding of how it all fits together.

Present theories of teaching and/or development are each too limited to do the job, although some are potentially or structurally more inclusive than others and should be better starting points. For example, the cognitive-developmental-transactional theories of Piaget and others, or Gagne's cumulative learning model, at present seem more inclusive than the behavioral-environmental theories of Bijou and Baer, Skinner, and others. We need to build more comprehensive and inclusive theories out of the present competing ones. We need to help teachers build more comprehensive and inclusive understandings (or theories) to guide their work with children. In the absence of a comprehensive theory of ball games, it is necessary to attend many games in a sport new to us in order to understand what it is all about. To play the game well, of course, requires long hours of guided practice under game conditions. No amount of reading how to play from books will allow one to go out the first year and star at quarterback.

Our practice exceeds our theory. Much of what we know how to do goes far beyond what we know how to describe and explain. Certainly we do not begin to understand all the forces that shape human behavior, even in the most ambitious and highly developed theories. On the other hand some

existing philosophies of education and psychologies of development and learning can provide insight and perspective to help us improve what we do. We need to develop cooperatively theory that is strong and comprehensive to lead us to a more adequate understanding of human development and the conditions that shape development so that we may:

1. Replicate the kinds of teaching that we intuitively feel is good (or that leads to desired observable outcomes) in many different kinds of settings;

2. Improve even those programs that we think are good already--e.g., extend them to include aspects of development not yet covered or to apply them to kinds of children they do not seem to "fit";

3. Develop systematic, replicable ways of evaluating outcomes--formative, summative, and comparative--without restricting, inhibiting or oversimplifying those outcomes in the process; and thus

4. Contribute to the extension of basic research in human behavior as well as to the quality of the science-based art of education.

Ivorytowerism. Another consequence of the relatively underdeveloped state of our understanding of human development is a confusion between Education and Schooling, a lack of clarity about the relationships between the total set of environmental forces that influence the course of each individual's development and the particular forces that are brought to bear through school programs. As a result, we tend to both overestimate and underestimate what we can do in schools. For example, we overestimated how much we could do in classroom programs to improve the achievement of the children we call disadvantaged, and we've badly underestimated the negative effects we've had on the self-esteem of youngsters whose appearance or behavior in one way or another doesn't fit our image of what is acceptable.

We also try to package knowledge of the world in order to bring it

into our classrooms in simplified and uncontroversial form. We try to order things for children instead of trying to help them find order themselves in the complexity and ambiguity that surrounds them. By so doing, we make the schools less relevant to the present day and the education they provide less relevant for an unpredictable future.

The division of labor between the schools and other agencies is a product of times past and it is obsolete. The time has come to find better ways for getting children educated, for providing them with opportunities for growth not provided elsewhere, and for encouraging and enriching their use of many resources in the community.

Some say that we will not be able to reform the schools without reforming society and that perhaps we have the kind of schools our society deserves. However, even those who would take their children out of the present schools will have to figure out how to help them cope with the realities of present society and to resist some of its shaping forces. Such structuring will require dealing with the wider arena rather than seeking retreat into some utopian escape.

II.

Comprehensive Developmental Education

I would like to list some of the main characteristics of open or informal education. To get away from the either-or problems of the current battle of the "isms", I will use the inclusive term, "developmental" education. The following description of developmental education is not new in the sense that no one has ever thought of it before, or even in the sense that it is not now sometimes found in practice, but it does outline the characteristics of my version of defensible, psychologically and morally sound humanistic educational programs.

Because developmental programs are very complex, they must be evolved by teachers, students, parents and administrators working together over long periods of time in each local school building and the surrounding community. The list of characteristics is meant to aid such groups as they try to work out the particulars of different situations in a variety of different (yet equivalent) ways. It is also an expression of faith that the hard work Dewey spoke of will be worth the effort.

The prototypes upon which this description is based are the British pacemaker schools because they operate with an informal as opposed to a traditional or formal curriculum without giving up teacher initiative in important areas. Most of the current examples of developmental education are still physically based in school classrooms, although some have spilled over into corridors, yards and other nooks and crannies of the buildings and neighborhoods in which they are located. Some have even been regularly extended out into the community. I mention this because the characteristics I am going to list need not be confined to programs in school classrooms, nor need they be limited to programs for young children. However, since

classroom programs are the most familiar to all of us, let us start there. There are, of course, other places and other approaches which would yield the same quality of education.

1. Transaction. In a developmental classroom there is a continuing interaction among three different active elements: (a) the current experience of students in the classroom and in their total environment, (b) the structural demands of the knowledge disciplines, or ways of knowing, and (c) knowledge previously constructed by students as a result of interactions of the first two. Current experience includes teacher interventions, problems related to being in a classroom group, and interactions with other people. The different ways of knowing each have limitations as well as increased possibilities, and each involves unique characteristics as well as overlapping and interrelating with others. Previously constructed knowledge is of self and others; it involves language competence and performance, mathematics and science, and includes expectations for school, "learning sets", and understanding of the ways of knowing.

No one of these three elements is salient or dominant for very long, but each has periods of ascendency as the teaching-learning processes go forward. Children tackle problems that come up in their everyday experience, or that are brought to their attention by the way the teacher has arranged part of their experience. These problems often lend themselves to approaches from the point of view of several disciplines or ways of knowing. Each of these approaches makes certain demands to which children must accommodate (e.g., to the properties of number systems or English syntax) and these in turn may be used by the child to assimilate and understand aspects of the world. The child always starts with his current knowledge, with the already

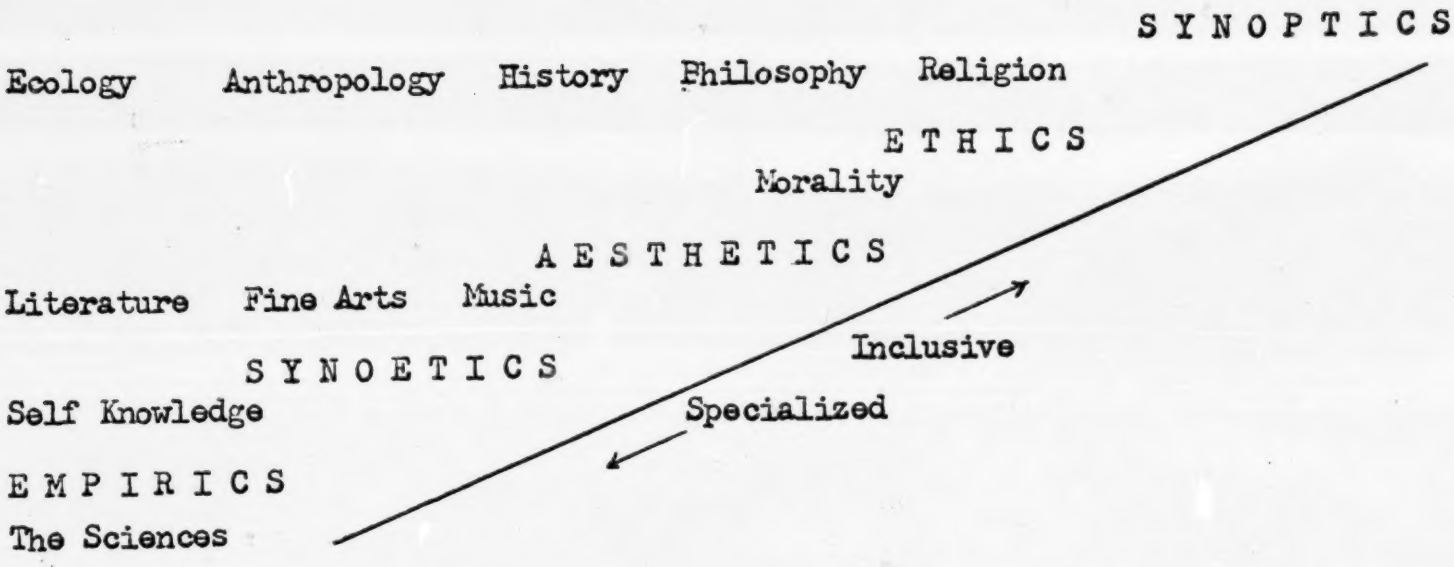
acquired (or constructed) conceptual structures which, over the course of his early years will be progressively transformed to accomodate new experiences and open up fresh possibilities for understanding.

In contrast. In many progressive schools, the main emphasis was upon the child and his experience, his interests and needs. Subject-matter was neglected, not only in the sense that children often didn't learn to read or write or spell, but more importantly in the sense that the nature of knowledge and its relationship to learning and development was not reconceptualized. Subject matter content was either accepted in a traditional way, as something to be "covered", or it was dealt with rather haphazardly when occasions arose, as in the "functional" teaching of writing, reading and arithmetic. Theoretically, at least, all needed knowledge was either to be gained through problem-solving or was assumed to be waiting in a form comprehensible to young children for use in the problem solving process.

In most traditional, or "American standard", programs, the main emphasis has been put on the coverage of subject matter and/or the acquisition of certain skills and abilities related to it. Much or most of the order and sequence of activities or presentation is based on the logic of the subject-matter rather than the "psycho-logic" of children's development and learning. During the 1950's surge of curriculum projects, efforts were made to promote discovery and inquiry, to get children actively engaged in building knowledge in mathematics, science and social studies, rather than taking in such knowledge in largely predigested form. However, the difficulties of retraining teachers, much previous packaging and merchandising of materials, and little carryover from one subject area to another hampered these efforts. Reformers did not go far enough in rethinking the knowledge areas in general,

Diagram 1

WAYS OF KNOWING AND BEING HUMAN*



*Adapted from Phenix (1964).

and therefore more widely applicable, terms and so teaching activities were restricted largely to the particular materials and equipment supplied.

2. Fullness. In a comprehensive developmental curriculum, a full range of knowledge disciplines, or ways of knowing, are represented--both individually and in their interrelationships with one another. (See Diagram 1.) The "3Rs" are not considered more "basic" than art or music and movement; self-knowledge, morality, and understanding social interaction in group situations are just as important as mathematics, science and social studies. The sensorimotor manipulation of objects in relationship to others in space and time, role-playing and other forms of representation, and many other rich aspects of play are all considered important in themselves and essential to other aspects of development.

Also considered important are the students' development of insights and skills related to functioning in the classroom and as effective individuals in any group or institutional situation. Planning and decision making, regulating one's own behavior, taking responsibility for getting tasks accomplished--all those things for which teachers would ordinarily take major responsibility under the heading of control, discipline or classroom management--are part of the developmental program for children. In a developmental program, teacher management is necessary, of course, but it is systematically directed towards the nurturance of individual autonomy and responsibility on the part of students.

The process of inquiry is, if anything, more important than the resulting content, although content (or the result of having applied the processes of inquiry) is certainly not neglected. It is just that there is

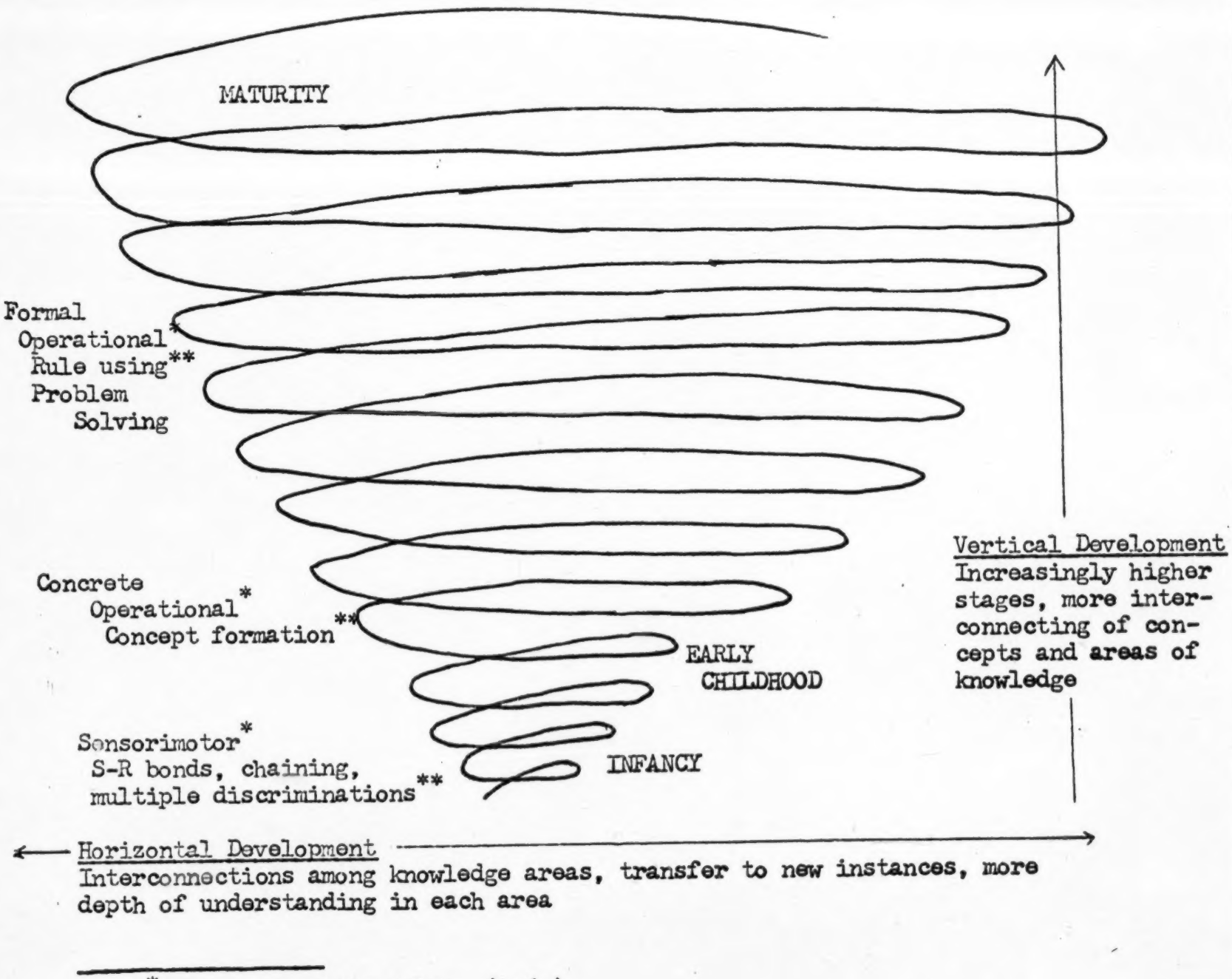
no drive to cover certain amounts of content, particularly verbal definitions, rules and generalizations that have previously been formulated by someone else and written in a textbook. The different ways of knowing included in a developmental curriculum contain tools for furthering one's knowledge in the future. These ways of knowing include constructs in the form of key concepts and patterns of relationships for ordering and rendering predictable and manageable various aspects of the complex and ambiguous world.

In contrast. Compared to this comprehensive picture, other school programs operate with a more restricted view of knowledge and the knowledge disciplines. Many nursery schools and kindergartens traditionally have stressed social learning and creative self-expression to the exclusion of the more academic areas, while the standared primary school curriculum focuses sharply on the 3Rs, with other areas getting attention inconsistently --usually when individual teachers happen to have particular interest or ability in them. The progressive schools often included a rather full range of knowledge areas but then tended to blur important distinctions among them. In trying to maintain an integrated view and deal as much as possible with life situations, the distinctive constructs and inquiry approaches of the various disciplines were lost in the reduction of all inquiry to a four- or five-step problem solving process.

Perhaps all possible ways of acquiring understanding must be brought to bear if we are to help young people attain full humanity. It is common for both educators and behavioral scientists to divide up the tasks of carrying on their quests for understanding and for better ways of nurturing children into small manageable parts--parts that often turn out to be a school of psychology or a single school subject area. It is then all too easy to mistake the part for the whole and to neglect those parts which one

Diagram 2

HIERARCHICAL STAGES OF HUMAN DEVELOPMENT


MATURITY
Formal Operational* Rule using** Problem Solving
Concrete Operational* Concept formation**
EARLY CHILDHOOD
Sensorimotor* S-R bonds, chaining, multiple discriminations**
INFANCY
Vertical Development
Increasingly higher stages, more interconnecting of concepts and areas of knowledge
Horizontal Development
Interconnections among knowledge areas, transfer to new instances, more depth of understanding in each area

*See Piaget and Inhelder (1969).

**See Gagne (1965).

has not taken responsibility to explore.

3. Spiral. In the developmental classroom students move along a continuum which runs from sensorimotor manipulations of first-hand concrete experience through higher order abstract thinking. In mathematics, for example, there will be apparatus and graphic representations through which students see and manipulate relationships and these experiences aid in the building of concepts that eventually will be mentally manipulated by students and communicated entirely through oral and graphic systems of abstract signs. (See Diagram 2.) In the developmental classroom children find themselves challenged to perform tasks at several levels on the developmental continuum and they are continually challenged to rise to the next (for them) highest level of performance. A child who can, for example, balance two sides of an arm balance by trial and error will be asked to carry out the operation involved in his head, to make predictions ahead of making actual manipulations, and to explain outcomes. Although representation through language is important, verbal facility does not substitute for conceptual understanding and children are urged to demonstrate and justify their understanding in a variety of ways--even when they get right answers.

In contrast. In the traditional curriculum, as soon as a child can demonstrate verbal facility, he is usually assumed to have mastered the underlying coneptual relationships involved. For example, when children can recite the number facts (times tables, etc.), we tend to take manipulative materials away (even to the extent of discouraging counting on fingers) and force them to carry on the whole process mentally. We do this because we believe that sensorimotor activities will act as crutches and inhibit

rather than enhance further learning, when just the opposite is the case. The result is often superficial verbalizing without depth of understanding.*

At the other extreme, we often let children work out problems in perceptual-motor ways without pushing them (at appropriate moments) to symbolically represent the factors involved and to carry out relevant thinking operations mentally (e.g., carrying on resemblance sorting without being challenged to carry out higher order classificatory operations).

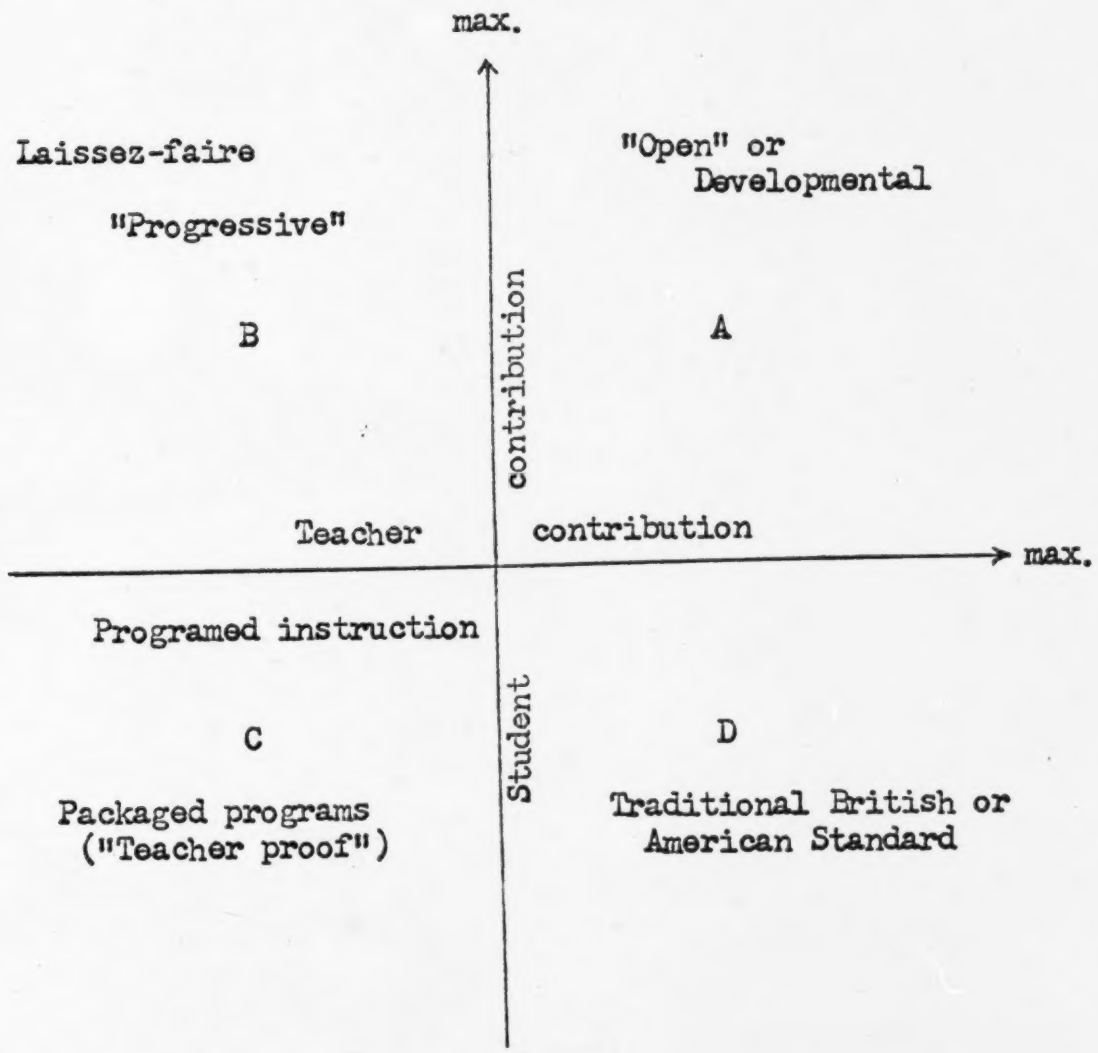
Premature movement to higher levels of thinking (especially through the use of language patterns) can occur at any age level. For example, adults enrolled in psychology courses are often presented with principles of development or learning in verbal form before they have adequately formed the concepts which are related by the principles; or the concepts are presented in the form of verbal definitions rather than being formed, by each individual, out of direct experience with relevant phenomena.

4. Initiative. In a developmental classroom, teachers and students contribute equally to decision-making concerning curriculum content and teaching-learning activities--including materials and approaches that will be used and the time, place and manner for carrying on various activities. Developmental classrooms contain active teachers who model the ways of knowing, raise challenges and create dissonance (make the given problematic), model inquiry behavior and other aspects of humanity, and constantly hold up high expectations and standards for achievement. Teachers serve as guides who can adapt their methods of guiding to a wide variety of situations and

*John Holt gives some good examples of verbalization without depth of understanding in How Children Fail (1964). See, for example, pp. 107-113.

Diagram 3

TEACHER AND STUDENT INITIATIVE IN DIFFERENT TYPES OF CLASSROOMS*



Quadrant A. Both teacher and students strong contributors.

Quadrant B. Student initiative salient with teacher in service capacity

Quadrant C. Students and teachers follow curriculum sequence worked out by someone else

Quadrant D. Teacher salient and students must follow.

*From Analysis of an Approach to Open Education - Interim Report, by Bussis & Chittenden, Educational Testing Service, 1970.

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thus can recognize many opportunities to help children develop in situations not ordinarily thought of as appropriate for teaching.

Developmental classrooms contain students who are actively contributing to the setting of goals and objectives, the assessment of present levels of development and progress towards fulfillment of objectives, and the shaping of teacher and peer behavior. Students take responsibility for planning and carrying out their own learning activities, both individually and in cooperation with others, for using adults and other children as resources, and for teaching each other.

In a developmental program there is broad-based accountability to high standards flexibly applied. Teachers and students always expect the best of each other, but are not impatient or unreasonable about it. Diagnosis and evaluation should be integral and continuing parts of the whole process of education, so that one need only summarize from a detailed set of records kept by both teachers and students to identify landmarks in each child's development. Students are not put into competition with each other, but each one measures his aspirations and accomplishments against his own previous accomplishments.

The contrast between the dual activism of students and teachers in the developmental classroom (Quadrant A) and the roles taken by teachers and students in other situations (Quadrants B-D) has been graphically charted in a recent analysis of Open Education (Educational Testing Service, 1970) which has been reproduced in Diagram 3.

5. Matters of Consequence. In the developmental curriculum, schooling is an extension of life in the real world of people and events, not merely an operation in which children are held until they are old enough to assume

roles as people. Students have the feeling that school is part of life, that it is "for real" There is minimal discontinuity between what children are finding out in their everyday encounters outside of school and what happens in the classroom; one is an extension of the other. Students' work is taken seriously and thus they consider what they are doing important, that it deals with matters of consequence. They write for an audience, they read to receive communication from others, they carry on inquiry in order to share their findings with their peers; above all, they master things that make life increasingly fuller, richer and more enjoyable for them and for those around them.

Children continue to explore on their own, to follow their own leads, as they did before they came to school; they also are continually introduced to new ideas and new experiences; they are given tools to work with and they are introduced to new ways of knowing to confirm, clarify or extend what they already know. They can go even beyond the limits of the teacher's knowledge and become classroom "experts" in various areas. In short, the children live as true scholars, living their lives and engaging in many fields of scholarship simultaneously.

6. Self Trust. Those involved in a developmental program trust themselves; they act on the assumption that it is within their power (and also legitimate and appropriate) for them to "make" knowledge, to inquire, to ask questions, to explore areas where they have little previous knowledge. They are willing (and able) to select and consult authorities and experts, but they trust themselves to figure things out and to know how to determine whether the conclusions they reach are valid. The children in the developmental classroom are willing to take risks; they dare to be wrong and to correct

their mistakes because the teacher is willing not to be the ceiling on knowledge in the classroom. The teacher will freely admit that he/she does not know, or that he/she has been wrong about something.

People who trust themselves can develop strong convictions. Teachers who have strong convictions do not hold back from exerting strong leadership with children for fear that they will be imposing on them or manipulating them unduly. But teachers with strong convictions can tolerate and encourage students and colleagues with strong convictions, too.

Many teachers in developmental classrooms have special fields about which they are enthusiastic: perhaps art or music, writing or drama, photography or gardening--and they are not afraid to show their enthusiasm, to get excited about something and let others get caught up in their excitement.

Finally, teachers and students have the right to have feelings and to express those feelings to one another in class. Self-knowledge and knowledge of others is a central part of the curriculum, and feelings are central parts of such knowledge.

7. Trust in Others. In a developmental curriculum there is a good deal of trust in others on the part of all concerned--students, teachers, administrators, and parents. Children are trusted to want to learn and grow and develop, to want to spend their time wisely when they know how without being under close external discipline all the time. Teachers are trusted to want to teach, to be doing their best to see that all children learn to read and write (for example). The schools are trusted by parents as places where people know what they are doing, where their children will get the best that is available in the way of nurturance fitted to their individual needs.

Children in the developmental classroom have respect for adults because they see them as reasonable, as being there to help, and because adults respect them. They see the demands that adults make as being in their (the children's) interest, as dealing with matters of consequence, but also as challengeable and open to question and modification. For all concerned, there is freedom of movement and choice commensurate with the freedom of others, a chance for taking independent initiative within a context of continual joining with others in working out ways of cooperating.

The administration of such a school is focused primarily on the building and facilitation of the instructional program. The principal is an instructional leader who is very much involved in working alongside teachers--in teaching--and in helping teachers to grow in professional skill and stature. The faculty of the school operate as a team engaged in developing the curriculum by developing themselves as professionals. In-service staff development is just as much a part of the school day as the development of children. Major decisions are made by those who will be carrying them out and who will be affected by them.

Trust, of course, must be earned as much as given and, when given, trust must be coupled with an intensive effort to see that those in whom it is invested are capable of living up to it. Children who do not know how to go about planning and executing their own study of reading or mathematics, who may not even know what they are looking for in those areas, are going to look very "untrustworthy" if they are simply turned loose to try. Teachers who are not given needed inputs of guidance and resources and appropriate reinforcement are not likely to work to improve themselves and their services to children.

8. The Larger Map. The teacher in a developmental curriculum must orchestrate many different kinds of resources and activities into a continually evolving symphony where variations on the main theme of nourishing children's development are created to suit each new situation and each new set of children.* Since rigid recipes and routines cannot be devised for a developmental classroom, we must look elsewhere for an understanding of the basis for the teacher's behavior, for the ways he has of knowing what to do when. Here is where a comprehensive theoretical model (even if it must be largely metaphorical at first) will serve better than a relatively narrower set of principles or laws. The developmental teacher can be assumed to be operating on the basis of a rather comprehensive map of the territory in which he/she operates. This map includes many diverse landmarks having to do with the characteristics of children at different stages of development, the knowledge areas or ways of knowing, group dynamics, and a range of cultural forces--and this map ties all these elements together in relationship patterns which transcend the narrowness of particular situations and times, while maintaining certain constants that carry over from one to another and which guide individual and group behavior. The comprehensive map permits different yet equivalent clusters of teaching-learning activities to take place, each tailored to the specific requirements of the moment. In sum, it provides for teachers (and students) a view of what to look for, how various individual activities fit into a long-range scheme of goal-related behavior.

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*The teacher's performance is more comparable to the improvisations of a good jazz musician than to even the most brillant interpretation of a fixed musical score.

Let me suggest some particular elements which these maps should contain:

a. Conceptualizations of the ways of knowing in a developmental framework (combination of Diagrams 1 & 2). Such conceptualizations coordinate the main characteristics (key concepts, domains, approaches to inquiry, etc.) of each knowledge discipline and the characteristic stages of children's thinking (Piaget) or the conditions of learning (Gagne) in a stage-sequenced, hierarchical theory of human learning and development.

b. Conceptualizations of the conditions under which learning and development take place which are related to a. in ways that permit teachers to recognize opportunities to get children involved in mathematics or reading or art in a wide variety of ways in many different kinds of situations.

c. The conceptualizations of a. and b. should be rooted in a more comprehensive cognitive-developmental-transactional view of human behavior and development than any of the individual schools of psychology have yet produced--a kind of combination of Piaget and Gagne as a framework to which the formulations of Bijou and Baer, Skinner, Erikson, White, Gesell, and some of the humanistic psychologies are related.

III.

Where Do We Go From Here?

The transformation of parts of the British educational system has been a long and complex affair--and it is still going on. To understand all the strands of development, we would have to study the British experience in considerably more depth than we have to date. Underlying economic, social and political factors which contributed to the growth of the British pacemakers must be identified and contrasted with similar factors in the United States before we can clearly distinguish the characteristics of the pacemakers which may be specific to the British context from those characteristics which may be exportable. These were among the conclusions drawn by Lucy Haskell (1971) in a study she recently completed of the development of the British primary (elementary) schools. Dr. Haskell spent nine months in Great Britain during 1970 visiting primary schools, interviewing individuals connected with the schools, and reviewing historical and current literature relevant to the development of early childhood education (particularly the pacemaker schools) over the past century.

One of her main findings was that the programs of the pacemakers had evolved--often over a period of a decade or longer--in local buildings and districts, and typically under the guidance of strong, charismatic leaders. In her concluding chapter, Dr. Haskell makes the following suggestions regarding the development of pacemaker caliber programs in the United States:

a. Autonomous school communities should be set up to reflect the educational philosophies of children, parents, principals and teachers in the feeder community.

b. Principals should serve primarily as instructional leaders, as partners in the educational process with teachers, and should teach, lead curriculum development, and support teachers in their own development.

c. Curriculum must be developed by teachers and other school staff through continuing programs of professional staff development which are regular parts of the school day and teacher role.

d. Artist-teachers should be recruited and trained. They should be recruited from groups of well-educated and cultured adults who are willing to exercise individual initiative and to take responsibility, together with others, for carrying out a very demanding role.

How to bring more comprehensive-developmental programs into existence?

I would add the following suggestions to those listed just above:

e. Start with schools that have a good percentage of experienced teachers and work "with all deliberate speed" and according to the readiness of each individual staff member.* Some teachers may want to start with a single subject area or with a particular block of time during the day which is set aside for independent activities on the part of the students. Others may prefer to "go for broke" and teach their children immediately how to take at least some responsibility for their own learning. Most will fall somewhere in between these two extremes.

f. Children and parents will have to move along with teachers in opening themselves up to increased independence and initiative. Children will, for example, have to be helped to develop alternatives to adult control and discipline, if they do not already possess them. Parents will have to be helped to recognize reading, writing, and mathematics coming in forms other than the familiar textbooks and workbooks. It is probably well not to announce to anyone that the school is adopting a special, "new" program--be it called "open" or "progressive" or "modern" or whatever--. The more gradual the shift and the less attention that is called to it as a shift, the better it will be for all concerned.

g. Curriculum development should be carried on in local units--usually building staffs--as a regular part of their professional responsibility. The main emphasis should be on the in-service development of teachers. Curriculum work at other levels should be supportive of this local staff effort and strong leadership and rich resources should be provided: workshops for teachers to help them re-work and improve their understanding of human development and the ways of knowing, develop and produce materials and equipment, devise fresh approaches to record keeping and evaluation. Other school units can provide equivalents to the British HMIs, Advisers and Organizers, professionals who are deeply engrossed and highly competent in various ways of knowing that they can share with teachers and students.

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*Student teachers can be placed with experienced teachers in a ratio of as many as 2 or 3 to one. Inexperienced teachers trying to "open up" should probably group themselves in teams of 2 or 3 under the guidance of regular advisers or supervisors who can help them work out fresh teaching approaches together.

h. The development of adults (especially the teachers) should be carried out with the same amount of attention to sound principles of human development and learning as is used with children. Among other things this might include teaching human development and the ways of knowing to teachers by guiding them in the collection and interpretation of the same kinds of data used by various researchers and theorists in the several disciplines in relation to their on-going work with their students, as well as in more structured laboratory situations (as in carrying out systematic Piagetian interviews).

i. The development of means for assessing children's developmental progress before, during, and after various phases of instruction must take place. These approaches must be broader and more inclusive of many dimensions of development than most presently available test and measurement instruments, and should for the most part be able to be administered and interpreted by children and parents as well as by teachers and other professionals.*

j. Behavioral scientists and others should help in carrying out a kind of action research related to the bringing about of educational and institutional change needed to support continuing staff development and curriculum reform. Educational leaders, teachers and community members need help in understanding how to go about clarifying mutually agreed objectives and pursuing them. Social scientists need much more understanding than most seem to possess at present regarding the forces in the community and within agencies which facilitate or inhibit change and reform.

k. Developmental psychologists (expanded to include those with broader cross-cultural or anthropological perspectives) will have to collaborate across their various specialties (e.g., age range, aspect of development such as language acquisition) and the now divergent views of human development and learning (e.g., behaviorist, maturationist, transactional, and psychoanalytic) to produce more comprehensive and more powerful theories of human development and to train human development specialists who can be of real help to practitioners in a variety of field situations.

What will finally give us the power to transcend the ordinary and the traditional will be a higher order understanding of the ways of knowing and being, of human development and learning in cross-cultural and longitudinal

*Of course, there will be exceptions to this (e.g., in the case of the diagnosis of severe learning difficulties, or in the broader perspective that a teacher must maintain concerning development in all areas.)

perspective, and of the conditions which foster and inhibit various aspects of development. It is my guess that the teachers we look to as exemplars of the kind of teaching we seek already possess this higher order understanding, even if they have developed it intuitively and cannot describe it to us. What we need is to help more teachers develop this more comprehensive view, and this will take more than curriculum kits, textbooks, and summer workshops. It will take a longterm process of in-service re-education of professional educators. This process can be inspired and guided by the study of those who are already involved in it, but its products cannot be packaged for export to others. Each of must engage in and develop our own map of understanding which is at the heart of the curriculum.

The British pacemakers were not developed as pacemakers, as panaceas for the problems of British education. They were developed by local educators who wanted to do better by the children who passed through their schools; the resulting school programs were recognized as pacemakers afterwards. It is the process by which these schools developed and the ideas that guided that process that we need to understand, not the product. For by the time that we get the program details of a pacemaker school fully described, it will have evolved further into something else.

Developing such programs takes long, hard work. It remains to be seen how many of us are willing to put in the effort.

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